

Foreword

In the early 1970s, the aftermath of the Civil Rights Movement, African-Americans, Latinos, and American Indians constituted less than one percent of the engineering work force in the United States. The long-term consequences of this glaring underrepresentation were clear. Since the dawning of the Industrial Age, engineering has been the root of economic development, a primary source of wealth creation. Contemporary corporate management drew its members, including sixty percent of the chief executives of the Fortune 500 companies, heavily from the engineering profession. Recognizing that the technological enterprise could no longer afford to be deprived of the nation's fastest growing talent pool, a visionary group of those chief executives, including Frank Cary, then CEO of IBM, gave birth to the National Action Council for Minorities in Engineering, NACME, Inc., a nonprofit corporation, to address the problem nationally.

Through a comprehensive portfolio of research, public policy initiatives, precollege efforts, and scholarship programs, NACME has invested \$200 million (inflation adjusted) to date, achieving outcomes that are no less than astounding. Nationally, the number of underrepresented minority engineering graduates has tripled. More than 7000 engineers now in the work force in the United States, ten percent of its minority engineering graduates since 1980, went through college with NACME scholarship support. Moreover, students plucked from the depths of economic and educational disadvantage, after NACME's rigorous college preparatory program, significantly outperform their fellow engineering students academically and have a phenomenal 92 percent retention rate. Almost half of all the NACME Scholars in recent years have gone on to graduate programs.

Perhaps even more significant than these impressive statistics are the achievements of the many NACME Scholars who would not have gone to college without NACME's intervention. Among them are entrepreneurs, executives of technology-intensive companies, science and technology policy analysts, patent lawyers, medical doctors, university professors, and corporate researchers. Yet nowhere are the individual contributions of the NACME Scholars more evident than in the American research enterprise. The papers presented in this issue of the *IBM Journal of Research and Development*, recently published in other journals, illustrate the breadth and scope of those contributions.

Readers of this issue will understand why we're so proud of the NACME Scholars who have gone on to advanced degrees and joined the research community. Their impact has been wide and it has been deep. However, despite the tremendous progress we've made, African-Americans, Latinos, and American Indians, now 30 percent of the college-age population in the United States, still yield just over three percent annually of its engineering doctorates. There is much work still to be done. Our ability to continue the extraordinary global economic expansion, driven primarily by technological innovation, will dependent strongly on our willingness to expand the effort to nurture our talented young people.

NACME owes much of its success to the IBM Corporation, which has been at the forefront of the effort to create equity and access to the engineering profession and which has contributed to NACME in so many ways, including financial and technological resources, throughout our quarter century of existence. The people of IBM have also provided significant support. They've shared their experience, wisdom, and leadership skills. They've served as mentors for NACME Scholars and as members of NACME's Board of Directors.

I'd like to thank Armando Garcia, Vice President, Content Management Solutions, IBM Corporation, for serving as Guest Editor of this issue. NACME owes a great debt of gratitude to B. Dundee Holt, NACME Vice President, Public Information, for his assistance in identifying contributors for the issue, and to Miriam Masullo, IBM Thomas J. Watson Research Center, who spent the past two years with us under the IBM Loaned Faculty Program. She conceived the idea of publishing the issue and has shepherded its development. Many thanks also go to the editors of the *Journal* for their contributions.

A very special thanks goes to Nicholas Donofrio, Senior Vice President, Technology and Manufacturing, IBM Corporation, who has served on the NACME Board of Directors since 1993. As its chairman for the past four years, with an unwavering commitment to NACME's mission, he has provided extraordinary leadership of the Board and has been an inspiration to many NACME Scholars.

A handwritten signature in black ink, appearing to read 'G. Campbell, Jr.', with a stylized, cursive script.

George Campbell, Jr.
President and Chief Executive Officer
NACME, Inc.

As this issue goes to press, Campbell is leaving NACME to become President of The Cooper Union for the Advancement of Science and Art.